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Clinical Potassium Problems

HELEN EASTMAN MARTIN, M.D., MAXINE WERTMAN, A.B., LEOLA WESTOVER, A.B.,
D. G. SIMONSEN, Ph.D., and JOHN W. MEHL, Ph.D., *Los Angeles*

SUMMARY

Alterations in serum potassium are common in many diseases. In a series of 390 determinations of serum potassium, the levels found were low in 24 per cent and high in 2.6 per cent.

The major causes of low serum potassium are (1) decreased potassium intake due to intravenous feedings which do not contain potassium; (2) increased loss of potassium in the urine due to accelerated tissue breakdown, or renal lesions; (3) loss from the gastrointestinal tract due to diarrhea, or fistulae, and (4) shift between serum and cells, due to metabolic causes, drugs or changes in pH.

The major cause of high serum potassium is uremia with renal retention.

Clinical symptoms and signs of low body potassium include muscle weakness and paralysis, which may lead to death in respiratory failure if not corrected, tachycardia, gallop rhythm, dilatation of the heart. The electrocardiogram shows inverted, low amplitude, or isoelectric T waves and a prolonged QT interval.

Potassium chloride orally, subcutaneously or intravenously is recommended for use in the treatment of potassium deficits. It should not be used in the presence of oliguria or anuria or dehydration. The amounts of potassium necessary to correct deficits vary widely and cannot be predicted from the serum level. Special reference is made to the prevention and therapy of potassium deficits in diabetic acidosis.

High serum potassium levels are difficult to correct. Suggested measures are administration of glucose, insulin or calcium, gastric or peritoneal lavage or use of the artificial kidney.

UNTIL recently serum potassium levels have been determined in only a few diseases, and usually only by research laboratories, due to the time and difficulty involved in the chemical determination. A rapid yet accurate method is now available to the clinical laboratory with the development and improvement of the flame photometer.[3, 26]

From the Department of Medicine of the University of Southern California School of Medicine and the Los Angeles County General Hospital.

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INCIDENCE OF ABNORMAL POTASSIUM LEVELS

The widespread alterations in serum potassium which may occur clinically are becoming increasingly apparent as more tests are made. This is illustrated in Table 1 which shows the incidence and the abnormal values found during one month in a large county hospital. It is significant that 27 per cent of the 390 determinations made were abnormal, with 24 per cent low and 2.6 per cent high. With one exception, the high serum potassium values were found in patients with uremia, and were due to

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EDITORIALS

Catastrophe Coverage

One criticism which proponents of socialized medicine have leveled at voluntary programs of sickness cost insurance has been that the long-term chronic diseases are not covered, that the member suffering from a condition which by its very nature is bound to last a long time cannot receive care for the disease under the voluntary plans.

Voluntary sickness cost insurance is a relatively new member of the insurance family in the United States and, from all indications, a lusty, growing child. Both the physician-sponsored and the medical association non-profit plans have undergone a tremendous growth within a space of only a few years. As witness, our own California Physicians' Service has grown from 125,000 to more than 900,000 beneficiary members in less than five years.

With the growth in membership, C.P.S. and other voluntary plans are in a position to delve into new and unexplored types of coverage, their ability to do so springing from the fact that their financial position is secure to the point where a potential loss from a new type of service may be absorbed by the regular program. In this way a number of innovations have been developed, founded on actuarial experience and offered on an economically indicated basis which has later proved to be accurate in the light of experience. Such progress furnishes additional actuarial material as a basis for still further advances.

Latest item in this progressive movement is the announcement by California Physicians' Service of the addition of catastrophe coverage to its group contracts. For a small addition to the regular monthly dues, C.P.S. is now offering medical and surgical care for a list of 23 diseases or conditions for a period of a full two years or to a maximum expenditure of $5,000, whichever is reached first. The diseases covered are cancer, poliomyelitis, rheumatic fever, diabetes, osteomyelitis, tuberculosis and others in the chronic disease classification. The conditions include severe fractures and severe burns.

Here is pioneering at its best. C.P.S. does not know what the cost of this offering will be; however, it believes it knows this cost closely enough to warrant offering this new coverage to its members. If the advance calculations prove to be wrong, changes will have to be made; on the other hand, if the program can more than carry itself financially, it will be possible to add to it in service or to reduce the dues paid for it. Thus the beneficiary members stand to gain in service if experience proves the accuracy of the advance actuarial calculations; they will not be called upon to underwrite a deficit if the cost of care turns out to exceed the dues paid during the trial period.

California Physicians' Service has already been showered with nationwide acclaim for taking this momentous forward step. Its experience will be closely watched and its program will certainly set a pattern for all voluntary programs. Congratulations to those who studied the possibilities of catastrophe coverage, who worked out the methods of providing the coverage and who had the courage to introduce this latest advance in the voluntary systems of sickness cost insurance.

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C. M. A. Statement of Principles
ON THE MEDICAL AND HOSPITAL CARE OF INDIGENTS BY COUNTIES

The following statement was adopted by the Council of the California Medical Association at its regular meeting January 14, 1950.

STATEMENT OF FACTS

1. The residents of counties in California are morally and legally obligated to provide medical care and hospitalization for those persons residing in the county who are unable to secure such care through their own resources.

2. To provide such service, it has been the custom of the counties, with few exceptions, to maintain a county hospital, in which are located beds for the care of the indigent sick, surgical facilities for those who need them and, in many instances, clinic facilities for the care of ambulatory patients.

3. It has also been the custom of most counties to provide both hospital bed and clinic facilities on the basis of maximum demand; such facilities are often not in use because the morbidity rate is below the maximum anticipated.

4. The provision of maximum demand facilities has not constituted a financial strain on the counties until recent years, when construction costs have risen materially. Inasmuch as the counties are legally required to keep their bonded indebtedness within a fixed maximum, the provision of additional hospital and clinic facilities at this time represents an extremely difficult financial operation, often impossible.

5. At the 1949 session of the State Legislature, A.B. 916 was enacted as Section 202 of the Welfare & Institutions Code. This law provides that the counties may contract with private individuals and institutions for the medical and hospital care of those indigents who are legally entitled to be given such care at the expense of the counties. This law makes it possible for the county governments to utilize the facilities of private hospitals and private medical care facilities (doctors' offices) in caring for eligible indigents and thus save (a) capital investments in facilities and (b) prolonged expensive hospital sojourns.

6. There exist in California today some 271 private hospitals with 48,829 beds for sick patients, many of these institutions having clinic facilities for the care of ambulatory patients. There also exist some 12,000 offices of private physicians capable of and licensed to treat ambulatory patients.

7. There exists in California today an organization of more than 10,000 physician members, California Physicians' Service, capable of contracting with county governments for the out-patient medical care of county indigents.

8. There exist in California today two hospitalization organizations, Hospital Service of California and Hospital Service of Southern California, both being non-profit organizations of hospitals capable of contracting with county governments for hospital care of county indigents.

CONCLUSIONS

1. Present construction costs make unwise the building of more county hospital facilities, either beds or clinic quarters, at this time unless urgently needed. Construction is only the beginning—maintenance goes on forever.

2. The maintenance of large county hospital facilities is a continuous financial drain on taxpayers.

3. The cost of operating county hospitals, including the maintenance of maximum facilities, is considerably higher than the comparable cost of private hospitals per patient per day.

4. The cost of operating county hospital clinic or out-patient facilities, including the maintenance of maximum facilities, makes for a high per-patient cost for the care provided.

PRINCIPLES

1. Additional county hospital construction in California, except for possible additional beds for the acute sick, is not needed at this time.

2. The counties should avail themselves of the provisions of Welfare & Institutions Code, Section 202, in contracting for the care of their indigent charges.

3. The facilities of the two hospitalization organizations and of California Physicians' Service should be utilized to the full by the counties in contracting for hospital and medical care for their eligible indigents.

4. The counties must retain the obligation of providing a social service screening of county residents for the determination of eligibility to receive these contracted services.

5. The counties should carefully survey the available medical and hospital care facilities within their own borders prior to seeking state or federal funds or incurring additional bonded indebtedness for added hospital construction.